

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-3 (Cancelled)

4. (Currently Amended) [[The compound of claim 1,]] A compound comprising:
- a polymeric chain;
- an acid labile group attached to the polymeric chain; and
- at least one hydrophilic group attached to the acid labile group,
- wherein the at least one hydrophilic group comprises a sulfhydryl group.

Claims 5-14 (Cancelled)

15. (Currently Amended) [[The compound of claim 13,]] A compound comprising:
- a polymeric chain;
- a dissolution inhibitor attached to the polymeric chain to inhibit dissolution of the
- polymeric chain in a developer; and
- at least one hydrophilic group attached to the dissolution inhibitor,
- wherein the at least one hydrophilic group comprises a sulfhydryl group.

Claims 16-27 (Cancelled)

28. (Currently Amended) [[The method of claim 26,]] A method comprising:
- forming a layer of a composition over a substrate;
- exposing the layer to patterned radiation;
- generating an acid by photolysis of a radiation-sensitive acid generator of the composition;
- detaching an acid labile group having at least one hydrophilic group attached thereto from a polymeric chain of the composition by reacting the acid labile group with the acid; and
- developing the layer including contacting the layer with a developer, wetting the at least one hydrophilic group with the developer, dissolving the detached group in the developer, dissolving the polymeric chain in the developer, and removing the developer,
- wherein exposing the layer to the radiation comprises wetting the at least one hydrophilic group of the detached group with an immersion lithography fluid.
29. (Original) The method of claim 28, wherein wetting the hydrophilic group with the fluid comprises forming a hydrogen bond between a hydroxyl group and the fluid.
30. (New) The compound of claim 4, wherein the at least one hydrophilic group comprises a hydroxyl group.
31. (New) The compound of claim 4, wherein the at least one hydrophilic group comprises a plurality of hydrophilic groups.

32. (New) The compound of claim 4, wherein the acid labile group comprises an organic group having the hydroxyl group attached thereto.
33. (New) The compound of claim 32, wherein the organic group comprises an alicyclic group.
34. (New) The compound of claim 33, wherein the alicyclic group comprises a ring selected from a monocyclic ring and a polycyclic ring.
35. (New) The compound of claim 33, wherein the alicyclic group comprises a group selected from C₁₋₆ cyclopentyl, C₁₋₆ cyclohexyl, C₁₋₆ adamantyl, and norbornyl.
36. (New) The compound of claim 33, wherein the alicyclic group comprises methyl adamantyl.
37. (New) The compound of claim 4, wherein the polymeric chain comprises a (meth)acrylate chain.
38. (New) A composition comprising:

the compound of claim 4; and

a radiation sensitive acid generator capable of generating an acid if exposed to radiation.
39. (New) A method comprising:

applying a layer of the composition of claim 38 over a substrate;

heating the applied layer;

after said heating the layer, exposing the layer to patterned radiation by transmitting actinic radiation to the layer through a patterned mask;

heating the exposed layer; and

after said heating the exposed layer, developing the exposed layer by contacting the exposed layer with a developer and then removing the developer.

40. (New) The compound of claim 15, wherein the at least one hydrophilic group comprises a hydroxyl group.
41. (New) The compound of claim 15, wherein the dissolution inhibitor comprises an alicyclic group.
42. (New) The compound of claim 41, wherein the alicyclic group comprises a ring selected from a monocyclic ring and a polycyclic ring.
43. (New) The compound of claim 42, wherein the alicyclic group comprises one selected from C₁₋₆ cyclopentyl, C₁₋₆ cyclohexyl, C₁₋₆ adamantyl, and a group including norbornyl.
44. (New) A composition comprising:
- the compound of claim 15; and
- a radiation sensitive acid generator capable of generating an acid if exposed to radiation.
45. (New) A method comprising:
- applying a layer of the composition of claim 44 over a substrate;
- heating the applied layer;
- after said heating the layer, exposing the layer to patterned radiation by transmitting actinic radiation to the layer through a patterned mask;

heating the exposed layer; and

after said heating the exposed layer, developing the exposed layer by contacting the exposed layer with a developer and then removing the developer.

46. (New) The method of claim 28, wherein dissolving the detached group in the developer comprises forming a hydrogen bond between a hydroxyl group of the detached group and the developer.
47. (New) The method of claim 28, wherein said wetting the at least one hydrophilic group comprises wetting a hydroxyl group.
48. (New) The method of claim 28, wherein said wetting the at least one hydrophilic group comprises wetting a plurality of hydroxyl groups.
49. (New) The method of claim 28, wherein said wetting the at least one hydrophilic group comprises wetting a plurality of hydrophilic groups.
50. (New) The method of claim 28, wherein said detaching the acid labile group comprises detaching an alicyclic group having at least one hydroxyl group attached thereto.
51. (New) The method of claim 50, wherein said detaching the alicyclic group comprises detaching a ring selected from a monocyclic ring and a polycyclic ring.
52. (New) The method of claim 50, wherein said detaching the alicyclic group comprises detaching a group selected from C₁₋₆ cyclopentyl, C₁₋₆ cyclohexyl, C₁₋₆ adamantyl, and norbornyl.
53. (New) The method of claim 50, wherein said detaching the alicyclic group comprises detaching methyl adamantyl.

54. (New) The method of claim 28, wherein said dissolving the polymeric chain in the developer comprises dissolving a (meth)acrylate chain.